nection between the races which migrated to those regions, or of early intercommunication between them. But my own information upon the subject is too scanty for me to discuss it further. G. FREDERICK WRIGHT.

Oberlin, O.

Nature Study in the Schools.

IN *Science* of March 2 an article on "Botany in the Schools" calls attention to a subject of interest to all teachers. "Nature Study," it may be assumed, has come to stay. It is too important a factor in education to be left out, even though its first introduction into the schools be accompanied with mistakes and inefficiency. This being granted, it is very reasonable to say, as does the writer of the article mentioned, that for the best results "a competent specialist should be put in charge of the work who could instruct the teachers, just as the specialist does in music and drawing." Nothing less than this, certainly, should be demanded of normal schools and large city schools having their own training departments. Teachers adapted to the work and thoroughly equipped for it should be put in charge of the training for science-teaching in the grades for the relief of the academic science teachers, whose regular work follows advanced methods, and for the more efficient application of the principles which govern elementary teaching. The State Normal School of Michigan sends out nearly two hundred graduates a year, many of them from the longer courses of study. The training schools of the large cities send out many more, and there is thus sent into the schools of the State each year a large body of teachers who know the meaning and the methods of "Nature Study."

But in any state, the large city schools form only a small portion of the aggregate. There are many schools in which the question of economy must regulate matters, and many schools which are not large enough to require the services of a special teacher. Shall these schools, then, "drop the subject altogether from the curriculum?" We answer decidedly not. Intelligent teachers, by reading and by study and use of material, should be able to fit themselves to do good work in this as well as in other lines. There are plenty of recent publications for their benefit, some of more, others of less, value. There are occasionally helpful lectures, and sometimes regular instruction at teachers' institutes. Every year the helps grow more numerous and are within easier reach. Current educational literature on this subject is not yet so abundant as it ought to be, but the demand will bring the supply. The educational journals have much that can be utilized, and there is one publication which is devoted to this work exclusively. This is *The Field and School Naturalist*, published at Minneapolis, which has absorbed *The Naturalist Teacher*, the modest little monthly started a few years ago by Professor McLouth, special science teacher in the schools of Muskegon, Mich. There may be other publications of similar character; certainly there soon will be others in the field, for the demand is imperative. With such helps the question of "Nature Study" should not be a question of alternatives, but rather one of doing in each school the very best the conditions will allow. LUCY A. OSBAND.

Michigan State Normal School.

A Brilliant Aurora.

AN aurora of unusual brilliancy and splendor was observed at Madison, Wis., on the evening of Feb. 23. A somewhat less notable display was seen on the night of the 22nd, but, so far as noted, it consisted only of the usual luminous arch, surmounted by long and rather brilliant streamers, which were white in the central portion of the arch and rosy red at the eastern and western extremities.

The display on the evening of the 23rd, as seen shortly before nine o'clock, consisted of a very brilliant arch, resting on a dense dark one, while a second dark arch was visible about three degrees below the upper one. The lower arch was not, at first, surmounted by a luminous portion. But few streamers were visible at this time. Stars were plainly seen in the space between the two arches, but not through the upper arch. In a few minutes the lower arch became somewhat luminous, and the dark portion of the upper arch became lighter.

At nine o'clock, at the eastern limb of the upper arch, a series of brilliantly colored streamers began to shoot up with great rapidity. The streamers were broad rather than long, and they had a swift westward motion. Nearly all were of several colors—red, yellow, green and white—in well marked, not very wide, bands. These streamers quickly assumed the appearance of swaying flags or curtains, and rapidly traversed the arch, moving toward the west. They seemed to occupy the space between the arch and the observer, and to absorb the arch as they advanced. Just before the front of the luminous folds reached the highest point of the arch, the latter was seen bending swiftly down in a double curve to about the position of the lower arch spoken of, but which was not then visible, and merging in the pendulous folds of the advancing, swaying curtains.

When the western limb was reached, brilliant streamers of white and crimson shot up to the zenith from both extremities of the arch with the swiftness of fierce flames but with only a slight swaying motion. The curtain-like folds had disappeared. The time occupied in the passage of the phenomena described was less than fifteen minutes. How much longer the display lasted and what was its character was not noted.

The magnetic disturbance was very considerable. After the brilliant portion of the display was over a compass was carefully adjusted and the deflection of the needle noted. The amount of the deflection at the end of fifteen minutes was 3°, 58′ to the west.

Although the movement of the needle was rapid,—most of the deflection occurred during the first five minutes,—the motion could not be perceived by the eye.

G. E. CULVER.

Madison, Wis.

The Durability of the Poisonous Property of Poison Ivy, Rhus Radicans L. (R. Toxicodendron L.).

A RECENT experience indicates that the poisonous principle of the above named plant is lasting.

In the botanical museum of Ohio State University are some stems of Poison Ivy that were deposited there not less than three years ago.

About ten days ago I noticed that they were infested with borers—the larva of some beetle. Desiring to study the beetle, the stems were broken a few times so that they would go into a covered glass jar. They are found to be bored through many times, so that they broke easily, and at every breaking the powder from the borings flew freely. I had no fears of being poisoned, but about 3.00 A.M. the next morning I was awakened by an itching between my fingers as if poisoned. Later development proved that it was poison, and I can account for it in no other way than that it came from the Poison Ivy. The burning was abated somewhat by the application of olive or sweet oil but lasted for several days. The epidermis is now coming off the affected part exactly as when having been poisoned with Rhus venenata D. C. E. E. BOGUE.

Columbus, O., Feb. 12, 1894.